

Special Report

1 Full-scale Overseas Expansion into China and ASEAN

Industrial Systems Segment

Establishment of a joint venture Chalco-Toyo Permanent Magnet Motor Co., Ltd. in China

We established a joint venture company to engage primarily in the manufacture of industrial permanent-magnet synchronous motors in Changshu, Jiangsu Province in the People's Republic of China (hereinafter China) in a joint investment with companies including Chinalco Rare Earth & Metals Co., Ltd., a supplier of rare earth metal resources affiliated with Aluminum Corporation of China (CHINALCO). The Company has been primarily engaged in the manufacture of railway electrical equipment in China since the latter half of the 1990s. With the establishment of this joint venture company which has the first manufacturing site for the Industrial Systems segment, we will actively capture needs for energy conservation in the Chinese and ASEAN markets. The joint venture company will engage in the manufacture of permanent-magnet synchronous motors mainly for production and processing facilities.



Signing ceremony of the joint venture with three investing companies



► Overview of the new joint venture

Company name	Chalco-Toyo Permanent Magnet Motor Co., Ltd.
Established	June 10, 2019
Capital	60 million Chinese yuan
Business activities	Manufacture and sale of permanent-magnet synchronous motors for industrial use
Equity ratio	Toyo Denki Seizo K.K. 35%, Chinalco Rare Earth & Metals Co., Ltd. 35%, Beijing Ling Yang Trading Co., Ltd. 30%

Establishment of SIAM TOYO DENKI Co., Ltd., an overseas affiliate in Thailand

With a view to expanding and strengthening business opportunities in the ASEAN region, we opened a representative office in Bangkok in September 2014. A new overseas affiliate was established in June 2019 against the backdrop of ongoing favorable conditions in the ASEAN macro environment. With this initiative, we will expand our business by reinforcing our operating structure and actively bolstering our sales activities.



Opening ceremony of SIAM TOYO DENKI Co., Ltd.

► Overview of the new overseas affiliates

Company name	SIAM TOYO DENKI Co., Ltd.
Established	June 4, 2019
Capital	4 million Thai baht
Business activities	Sale and service of general industrial electrical products in the ASEAN region
Equity ratio	Toyo Denki Seizo K.K. 49%, Bangkok MUFG Limited 48%, SBCS Co., Limited 3%



ジャカルタ都市高速鉄道 (Jakarta Mass Rapid Transit: MRTJ) 車両

Special Report

2 Opening of Jakarta MRT

Transportation Systems Segment

Jakarta Mass Rapid Transit (MRTJ), Indonesia's first subway, opened in the spring of 2019, with 16 six-car trainsets installed. The project, financed by a yen loan provided by the Japanese government, became the first full turn-key railway construction project that was successfully launched, where Japanese companies oversaw all aspects ranging from ground facilities to vehicles and signals.

The vehicles used for the project were delivered by NIPPON SHARYO, LTD., and we provided propulsion systems (VVVF inverters and related equipment, main motors, driving gear units, pantographs, and master controllers), train information system (TIS), and data recorders for operation status.

We will continue to contribute to the development of railway infrastructure in Asia by leveraging our technology for rail vehicle electrical equipment accumulated over 100 years.

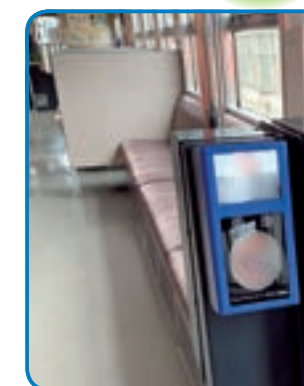
Special Report

3 Contributing to Local Communities with On-board IC Ticket Checking Machines

Information Equipment Systems Segment

We supplied on-board IC ticket checking machines developed jointly with West Japan Railway Technica Co., Ltd. to West Japan Railway Company. They started being used on the Sakai Line (between Yonago Station and Sakaiminato Station) in the spring of 2019. ICOCA, a rechargeable contactless card system, was introduced in the neighboring Yonago area at the end of 2016, and the on-board IC ticket checking machines installed for the Sakai Line enhanced convenience.

The on-board IC ticket checking machine can reliably identify stops by performing station identification based on (1) position data obtained from GPS (two systems) and (2) data obtained from the tachometer that measures travel distance by the number of wheel rotations and collates it with scheduled stops. Ticket checking machines that had to be installed at each station can now be placed on train vehicles, making it possible to introduce an IC system in any station environment. It is also hoped that the machine will be rolled out to railway operators nationwide as it can respond to the trend of cashless payments.



Blue device for boarding
Yellow device for alighting